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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,264	11/26/2001	Gary Edward Pawlas	35015.003	8615

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DUFT SETTER OLLILA & BORNSEN LLC
2060 BROADWAY
SUITE 300
BOULDER, CO 80302

EXAMINER	
MAKI, STEVEN D	

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,264	PAWLAS ET AL.	
	Examiner	Art Unit	
	Steven D. Maki	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-72* is/are pending in the application.

4a) Of the above claim(s) *1-4,19-28 and 45-72* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-18 and 29-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *010904*. and 021502 and 012804
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1) The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2) Claims 5-18 and 29-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 29 are indefinite because they depend on claims, which have been withdrawn. It is suggested to suggested to write claims 5 and 29 as independent claims.

3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

introduce adhesive into gap using opening

4) **Claims 5, 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama et al (US 5307689) in view of Lanham et al (WO 01/65213), Japan '877 (JP 60-112877) and Storick (WO 95/06562).**

Nishiyama et al discloses manufacturing a flow meter having a tube (flow tube) 5, a vibrators (drivers) 6a, 6b for the tube and pickups (pick offs) 7a-7d comprising providing a support base (base) 3, manifold (leg) 9 having a tube opening and support part (leg) 10 having a tube opening; inserting the flow tube into the tube openings of the legs and fixing the tube to the legs by welding. Nishiyama et al does not recite fixing by using an adhesive.

As to claim 5, it would have been obvious to one of ordinary skill in the art to fix the tube 5 of the flow meter in the openings of the parallel legs 9, 10 by using an adhesive instead of welding since Lanham et al, directed to manufacturing a flow meter having a driver and pick offs, suggests fixing using an adhesive instead of welding / brazing during manufacture of a flow meter so as to avoid microscopic cracks and thermal stresses generated by a brazing operation. See page 1 line 21 to page 2 line 6, page 3 lines 19-20, page 17 lines 1-6. Lanham et al is silent as to the details of the adhesive bonding. However, it would have been obvious to one of ordinary skill in the art to carry out the adhesive bonding suggested by Lanham et al by introducing adhesive in each gap by injecting adhesive in an opening of each leg (this opening intersecting the above mentioned tube opening) so as to adhesively bond the tube to the opening in each leg since adhesively bonding parts by introducing adhesive in a gap by injecting adhesive through an opening in one part *so as to introduce a proper amount (neither too little or too little) of adhesive* between the parts is a well known adhesive bonding technique as evidenced by Japan '877 and Storwick. Japan '877 and Storwick both teach that a proper amount of adhesive is used by injecting adhesive. Japan '877 adds that bond strength is improved 10-30%. Japan '877 and Storwick both teach that this injecting adhesive technique is suitable for bonding a tube to another part. The motivation (e.g. avoid thermal stress caused by the high temperature used in brazing) to use adhesive to bond the tube to another part (the leg) in Nishiyama et al and to look to the bonding art (e.g. Japan '877 and Storwick) comes from Lanham et al.

As to claims 7 and 16, the limitation of selecting the adhesive based on viscosity / selecting the size of the gap would have been obvious since in order to be injected per the teachings of Japan '877 and Storwick, the adhesive must be able to flow (have a suitable viscosity) so as to be introduced into the gap and obtain the desired bonding.

5) **Claims 6, 8-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama et al in view of Lanham et al, Japan '877 and Storick as applied above and further in view of Adhesives Technology Handbook and optionally van der Pol (US 6336370).**

As to claims 6, 8 and 17, it would have been obvious to use cyanoacrylate adhesive as in claim 6 since Lanham et al suggests adhesively bonding to avoid thermal stress and Adhesives Technology Handbook discloses cyanoacrylate adhesives as forming a strong bond between many materials without the need for heat (page 141). The limitation of controlling relative humidity of the environment in claim 8 would have been obvious in view of (1) Adhesive Technology Handbook's teaching that the resistance of cyanoacrylate adhesives to moisture is somewhat low and optionally since (2) it is taken as well known / conventional per se in the bonding art to control humidity in an environment in which a moisture sensitive adhesive is used. As to selecting amount of adhesive based on speed of curing as in claim 18, Adhesive Technology Handbook teaches that cyanoacrylate adhesives set very quickly.

As to claim 9, it would have been obvious to control a temperature as claimed depending on the desired time for adhesive bonding and/or bond strength since Adhesive Technology Handbook teaches that (a) elevated temperature may be used to

reduce cure time (e.g. page 128) and (b) application of heat will usually increase the bond strength of any adhesive including room temperature curing types (page 127).

As to claims 10-15, it would have been obvious to pretreat as claimed (i.e. etch flow tube as in claim 10, etch flow tube with sodium napthalene as in claim 11, clean flow tube as in claim 12, roughen inner surface of leg openings as in claim 13, clean inner surface of leg openings as in claim 14, clean inner surface of leg openings using an ultrasonic bath as in claim 15) since Adhesives Technology Handbook suggests surface pretreating the surfaces to ensure successful bonding wherein surface pretreatment techniques include cleaning such as solvent wiping (page 59), solvent cleaning using ultrasonic scrubbing (page 57), chemical treatment such as etching / treating with acetone and sodium napthalene (page 87) and roughening (e.g. page 89). Adhesives Technology Handbook teaches preparing surface of PFA using sodium naphthlanene. Although not claimed, it would have been obvious to use PFA for Nishiyama et al's flow tube since van der Pol teaches that PFA may be used instead of metal for a flow tube in a flow meter (col. 4 lines 30-34).

As to claim 18, it would have been obvious to apply accelerator as claimed since Adhesives Technology Handbook teaches that a catalyst may be incorporated into an adhesive formulation to speed up reaction between a base and hardener of a two part adhesive (page 134).

introducing adhesive in each gap and using fixture

6) **Claims 29, 31-33, 35 and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama et al in view of Lanham et al, van der Pol, Binnie et al (US 5837090) and Wiechowski et al (US 4244768).**

Nishiyama et al discloses manufacturing a flow meter having a tube (flow tube) 5, a vibrators (drivers) 6a, 6b for the tube and pickups (pick offs) 7a-7d comprising providing a support base (base) 3, manifold (leg) 9 having a tube opening and support part (leg) 10 having a tube opening; inserting the flow tube into the tube openings of the legs and fixing the tube to the legs by welding. Nishiyama et al teaches using a stainless steel flow tube instead of a fluoropolymer tube. However, it would have been obvious to one of ordinary skill in the art to use a fluoropolymer (e.g. PFA) tube as Nishiyama et al's flow tube since Lanham et al and van der Pol suggest using a plastic flow tube instead of a metal flow tube wherein van der Pol specifically suggests using a fluoropolymer flow tube (PFA tube) instead of a metal tube (col. 4 lines 30-34). Nishiyama et al does not recite fixing by using an adhesive.

As to claim 29, it would have been obvious to one of ordinary skill in the art to fix the tube 5 in the openings of the parallel legs 9, 10 by using an adhesive instead of welding since Lanham et al, directed to manufacturing a flow meter having a driver and pick offs, suggests fixing using an adhesive instead of welding / brazing during manufacture of as flow meter so as to avoid microscopic cracks and thermal stresses generated by a brazing operation. See page 1 line 21 to page 2 line 6, page 3 lines 19-20, page 17 lines 1-6. Lanham et al is silent as to the details of the adhesive bonding.

However, it would have been obvious to one of ordinary skill in the art to carry out the adhesive bonding suggested by Lanham et al by introducing adhesive in each gap since Binnie et al and Weichowski et al, which like Nishiyama et al assemble in "tubular structure" in holes of "vertical structures" suggests inserting the tubular structure in the holes in the vertical structures and then introducing adhesive in each gap *so that the gap is completely filled* by the adhesive and the desired bond thereby obtained. The limitation of using a fixture having first and second sections as set forth in claim 19 would have been obvious since Binnie et al (col. 4 lines 20-27) and Wiechowski et al (figure 12, col. 13 lines 3-4) suggest clamping the tubular structure during bonding in order to hold the tubular structure solidly and reliably in the desired position during bonding; it being noted that Wiechowski et al specifically illustrates such a clamp as having a first section 32 and a second section 34 (figure 12).

As to claim 31 (PFA), note the suggestion form van der Pol to use PFA for a flow tube.

As to claim 32, it would have been obvious to use stainless steel for the base since Nishiyama et al and Lanham et al teach that stainless steel has been used for a flow meter and Lanham et al teaches that only the flow tube needs to be formed of plastic.

As to claims 33, 35 and 42-43, the limitations therein regarding viscosity, temperature, gap size and speed of curing would have been obvious in view of Binnie et al and Weichowski et al's teaching to heat a curable adhesive at a relatively low

temperature to reduce the viscosity of the adhesive and cause it too flow in the gap and then to cure the adhesive.

7) **Claims 30, 34, 36-41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiyama et al in view of Lanham et al, van der Pol, Binnie et al and Wiechowski et al as applied above and further in view of Adhesives Technology Handbook.**

As to claims 30 and 34, it would have been obvious to use cyanoacrylate adhesive as in claim 30 since Lanham et al suggests adhesively bonding to avoid thermal stress and Adhesives Technology Handbook discloses cyanoacrylate adhesives as forming a strong bond between many materials without the need for heat (page 141). The limitation of controlling relative humidity of the environment in claim 34 would have been obvious in view of (1) Adhesives Technology Handbook's teaching that the resistance of cyanoacrylate adhesives to moisture is somewhat low and optionally since (2) it is taken as well known / conventional per se in the bonding art to control humidity in an environment in which a moisture sensitive adhesive is used.

As to claims 36-41, it would have been obvious to pretreat as claimed since Adhesives Technology Handbook suggests surface pretreating the surfaces to ensure successful bonding wherein surface pretreatment techniques include cleaning such as solvent wiping (page 59), solvent cleaning using ultrasonic scrubbing (page 57), chemical treatment such as etching / treating with acetone and sodium napthalene (page 87) and roughening (e.g. page 89). As to van der Pol's suggestion to use PFA for

the flow tube, Adhesives Technology Handbook teaches preparing surface of PFA using sodium naphthlanene.

As to claim 44, it would have been obvious to apply accelerator as claimed since Adhesives Technology Handbook teaches that a catalyst may be incorporated into an adhesive formulation to speed up reaction between a base and hardener of a two part adhesive (page 134).

Remarks

8) Applicant's election with traverse of Group II claims 5-18 and 29-44 in Paper No. 12-3-03 is acknowledged. The traversal is on the ground(s) that the inventions are not distinct and that Groups I though VI fail to have a separate status. This is not found persuasive because the inventions are distinct for the reasons given in the last office action and have acquired a separate status in the art for the reasons given in the last office action. As to the inventions being distinct, applicant has failed to address any of the examiner's reasons for concluding that the inventions are distinct. As to separate status in the art, applicant has failed to acknowledge the inventions having divergent subject matter; it being noted for example that (1) the subject matter in Group VI of a method of testing including indicating an unacceptable alignment is *divergent* from the subject matter in Group III of a fixture apparatus having a fixture block having tube opening, (2) the subject matter in Group V of a method of extruding and packaging a tube is *divergent* from the subject matter in Group I of a flow meter having intersecting openings in a leg, and (3) the subject matter in Group II of introducing adhesive in a gap is *divergent* from the subject matter in Group IV of attaching a driver component to

alignment means. Applicant's statement of the invention on page 15 of the response is not persuasive for the simple reason that the broadest claim in each Group fails to require all of this subject matter. For example, none of Groups I, III, IV, V and VI require introducing adhesive in each gap as is required by Group II. As to classification, the examiner notes that different classification can constitute reasons for insisting upon restriction. See MPEP 817. In addition, the examiner maintains that the Groups contain divergent subject matter.

The requirement is still deemed proper and is therefore made FINAL.

Although the restriction has been maintained, rejoinder or some or all of the Groups will be considered upon indication of allowable subject matter depending on the basis thereof.

Japan '872 (JP 54-110872) is cited of interest for disclosing injecting adhesive in a gap between a case 1 and iron cores 2 during manufacture of an electromagnetic flowmeter detector.

Hockett (figure 18, US 5449207) and Delanty (figure 4, US 5842496) are cited of interest for teaching an adhesive bonding process including injecting adhesive through a hole.

9) No claim is allowed.

10) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
March 7, 2004

STEVEN D. MAKI
PRIMARY EXAMINER
~~GROUP 1300~~
AU 1733

3-7-04